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Intangibles and research - an overview with a specific focus on the UK

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Intangibles and research – an overview with a specific focus on the UK

Plus ça change, plus c'est la même chose

Andrew W. Stark*

1. Introduction

There were four papers presented at the 2007 Information for Better Markets Conference on Intangibles and Research. Basu and Waymire (2008) express extreme scepticism as to whether balance sheet recognition of intangibles is possible. Their argument, at least in part, is that intangibles are not separable from tangible assets. Further, the value of intangible assets, whether singly or in combination, is best judged by emphasising the forecasting of future profit streams, as opposed to explicit balance sheet recognition. As stated by the authors, '[v]aluing accounting intangibles on a stand-alone basis requires heroic assumptions about separability, highly uncertain estimates of ambiguous future benefits, and arbitrary allocations of jointly produced income.' Further, intangible assets, when assessed at the macro-level for countries, are linked to government policies with respect to activities such as education and, as a consequence, it is difficult to identify them with specific firms.

Skinner (2008) evaluates policy proposals and concludes that private incentives to disclose information about intangibles, over and above that disclosed in the US, are the best solution, with regulators, at best, providing guidance as to the forms that these disclosures could take. This is based upon an analysis that critically evaluates whether current US accounting can be associated with the claimed difficulties in the US (e.g. under investment, difficulties in raising capital, etc., primarily related to technology firms and research and development (R&D)) – he argues it cannot.

Wyatt (2008) provides an extremely comprehensive analysis of the associations between financial and non-financial information on various types of intangibles and market value or returns (a real boon to academics!) – the work surveyed is global, although much of it emanates from the US. Whilst making recommendations for future research, she suggests, amongst others, that regulators might do better if more discretion were given to managers to recognise intangible assets (as in the UK and Australia prior to IAS adoption). She also suggests that disclosures could be enhanced to include more broad categories of expenditure.

Ittner (2008) considers whether internal measurement systems for intangibles, primarily for reward and performance evaluation purposes, are associated with superior performance. He finds some evidence that the measurement systems are associated with superior performance – including stock market performance – but little evidence about particular measures. His review suggests the complexity of business models within which wealth generation is achieved via expenditures on activities thought to have the potential to generate intangible assets.

Overall, the contents of the four papers suggest little reason to fundamentally change recognition practices, although arguments for small changes at the margin could be made (i.e. the allowing of discretion with respect to categories of development expenditures). Arguments are put forward for enhanced disclosure requirements with respect to items such as advertising expenditures. Voluntary disclosure mechanisms are seen as the most viable mechanisms for disclosures relevant to understanding the wealth creation possibilities of expenditures on potential intangible assets, if only because of the complexity and heterogeneity of the business models within which such activities are set. In this context, an argument could be made for accounting standard setters to provide general frameworks within which such voluntary disclosures can be made. Because much (but not all) of the evidence and arguments in the papers presented comes from the US, I will focus on the UK, particularly UK evidence that is available, and applying some of the arguments and recommendations to the UK. I will also focus on financial reporting and mandatory and voluntary disclosure possibilities and practices.

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2. Accounting for R&D expenditures

2.1. Observations on the history of accounting for R&D expenditures in the UK and the views of analysts and company accountants

It is illuminating to consider the history of accounting for R&D expenditures in the UK. Hope and Gray (1982) provide an illustration of the deliberations surrounding the introduction of SSAP 13 *Accounting for Research and Development* (ASC, 1977). In the UK, the initial standard was developed through a process involving two similarly titled exposure drafts, namely ED 14 (ASC 1975) and ED 17 (ASC 1976), resulting in SSAP 13 (ASC 1977).

During the process of development of the final standard, the recommended treatment evolved from: (i) requiring the immediate expensing of all R&D expenditures (ED 14); to (ii) the immediate expensing of all research expenditures plus the mandatory capitalisation and subsequent amortisation of development expenditures which satisfy certain criteria, with the immediate expensing of all other development expenditures (ED 17); to (iii) the immediate expensing of all research expenditures *plus* the optional capitalisation and subsequent amortisation of some development expenditures which satisfy certain criteria, with the immediate expensing of all other development expenditures (SSAP 13). Further, the issue of disclosure evolved from the disclosure of R&D expenditures (ED 14) to the disclosure of the amount carried forward, *plus* the balance and movement on the deferred R&D account (ED 17 and SSAP 13). Hope and Gray (1982) point out that this evolution was occurring at a time when it seemed clear that most UK firms (93%) immediately expensed all R&D expenditures.

Hope and Gray (1982) provide a discussion of why the standard evolved, relative to the responses received from interested parties to the two exposure drafts. With respect to ED 14, most respondents did not object to the immediate write-off of all R&D expenditures. Some firms proposed that some capitalisation of development expenditures should be allowed – but the motive for such a view mainly concerned the way in which government contracts worked in the aerospace industry. Some of the professional firms responding supported this latter view on the grounds of the matching principle.

When ED 17 responded to these concerns, by making the capitalisation of qualifying development expenditures mandatory, some companies expressed concern that this requirement should be mandatory, arguing instead that it should be optional. Nonetheless, some argued that allowing any form of capitalisation constituted a retrograde step in that it would produce an accounting for R&D expenditures out of step with other international standards. The voluntary capitalisers won the argument, producing the voluntary capitalisation option in SSAP 13.

With respect to disclosures regarding R&D expenditures, there was more objection at the ED14 stage to the requirement to disclose R&D expenditures. Hope and Gray (1982) identify eight correspondents commenting unfavourably. The common view amongst these respondents was '… that anything other that extensive disclosure of (e.g.) individual project expenditures and estimated success rates of projects, would be misleading to users of accounts. Their reason for not allowing extensive disclosure included, inter alia, problems of definition, comparability, materiality, and advantage to competitors' (Hope and Gray, 1982: 544–545). When ED 17 eliminated the requirement to disclose R&D expenditures, only one accounting firm, and the Department of Industry, objected.

Eventually, SSAP13 was revised to recommend the disclosure of R&D expenditures, for firms meeting certain size thresholds, but only in 1989. Stoneman and Toivanen (2001) analyse the impact of the revision of SSAP 13 on the disclosure of R&D expenditures by UK public companies. Their analysis suggests that the revision of SSAP 13 produced a large increase in the disclosure of R&D expenditures across all classes of firms. Nonetheless, by the end of the period they study (1994), their results suggest that only about 50% of firms were disclosing R&D expenditures.

Subsequent to the development of SSAP 13, and its revision, Goodacre and McGrath (1997) investigate whether UK analysts demonstrate myopic behaviour with respect to the treatment of R&D expenditures. Via an experimental study, their evidence suggests that analysts are not misled by the immediate expensing of R&D expenditures. The authors conclude that their results suggest 'analysts recognise the long term importance of R&D investment and are not myopic in this respect.' Their study also invited analysts taking part in the experiment to comment upon the accounting treatment of R&D expenditures. The authors report one characteristic quotation which states 'I believe R&D should be written off as it is incurred … there is no certainty that development will lead to a … return on investment … There is even less certainty that basic research will. Writing off R&D … does not allow for any value judgements … by top management with a vested interest.'

Nixon (1997) surveys the views of company accountants about the accounting treatment of R&D expenditures. Of the accountants surveyed, the vast majority of their companies immediately wrote off all R&D expenditures. Further, the bulk of respondents did not believe that this accounting treatment had any adverse economic consequences, in terms of their companies' market values or ability to raise

finance. Finally, Nixon (1997) states that, for the respondents, 'disclosure of information is the key factor determining the value the capital markets attribute to a company's R&D expenditure rather than its treatment; the tension between the accruals and prudence concepts that pre-occupy the accounting standard-setters is … of little relevance to their R&D accounting.' Interestingly, the respondents also suggested that much of this disclosure occurred outside of the regular financial statements via meetings with analysts and institutional investors, although many companies provided fairly detailed, objective, and verifiable, descriptions of their R&D activities outside the audited parts of their financial statements

Overall, the history of the development of UK standards for the recognition and disclosure of R&D expenditure suggests that there was no enormous demand for any treatment other than immediate expensing. Certainly, there was no demand for any widespread capitalisation of research expenditures. Further, although the situation evolved to incorporate the mandatory disclosure of R&D expenditures, some concerns were expressed as to whether a single number was likely to be informative without further details of the particular projects being pursued and the likelihood of their success. Further, issues of confidentiality and associated likelihood of proprietary costs were raised with respect to disclosure.

Subsequent work does not alter the view above with respect to accounting for R&D expenditures. Judging from Goodacre and McGrath (1997) and Nixon (1997), little demand exists from analysts or companies for the capitalisation of R&D expenditures. Companies do not believe that there are adverse consequences associated with the immediate write-off of R&D expenditures. What might have changed between the gestation period of SSAP 13 and now is the attitude towards disclosure about the nature of R&D activities, whether in the financial statements or outwith. Company accountants now see this as the main method via which the capital markets recognise the value of R&D activities.

2.2. The value relevance of R&D expense in the UK

A number of studies have reported on the association between R&D expense and market values in the UK, whether that association was the focus of the paper or not. The earliest paper in this number is Green et al. (1996). They collect data on UK listed firms for 1990, 1991 and 1992 reporting R&D expense, with sample sizes of 190 firms in 1990, 232 in 1991, and 240 in 1992. They estimate the following basic equation:

$$MV - BV = \alpha_0 + \alpha_1 BV + \beta RI + \gamma RD + \varepsilon \qquad (1)$$

where:

- MV is market value of the firm, measured six months after the financial year-end;
- BV is closing book value;
- RI is residual income associated with *the tangible assets of the firm*, measured as profits before exceptional and extraordinary items *plus* R&D expenditures *less* the product of the firm cost of capital multiplied by opening book value;
- RD is R&D expense; and
- ε is a mean zero random variable.

Equation (1) is estimating in deflated form, using book value as the deflator, and with a number of control variables added in after deflation (firm market share, annual concentration ratio for the firm's industry, firm debt ratio, average annual industry debt ratio, the square of the difference between the firm and the average annual industry debt ratio, annual firm return volatility).

Effectively, their model suggests that the excess of market over book value can be captured as the sum of a multiple of book value, capitalised residual income, R&D capital (expressed as a multiple of current R&D expense, because of the persistence in R&D expense – as in, for example, Hirschey and Weygandt, 1985), and the effects of the control variables.

The results are not totally convincing with respect to the value relevance of R&D expenditures. In the annual regressions, the coefficient of R&D expense is only positive and significantly different from zero, using heteroscedasticity-adjusted standard errors, and at the 5% level of significance, for 1991 – for 1990 and 1992, it is positive and significant at the 10% level.[1] When extreme values are removed, the coefficients of R&D expense are positive but barely significant, even at the 10% level. When the data is pooled across years (with or without extreme values), or rank regressions (a form of robust regression) are run on the annual or pooled data, or weighted least squares techniques are used on the undeflated version of equation (1), the coefficient of R&D expense is positive and significant at the 5% level. The overall conclusion

[1] Strictly speaking, given that Green et al. (1996) add RD expense back to earnings before creating residual income, the appropriate test for value relevance could be argued to be not whether the coefficient of RD is significantly different from zero but rather whether that coefficient equalled the negative of the coefficient for RI. Were that test not to be rejected, it would imply that the RI and RD terms could be amalgamated into (RI-RD) without any loss of explanatory power. Given that the coefficient RI is significantly positive and sometimes below and sometimes above that for RD for all estimates, operating the suggested value relevance test might have produced significant results. Nonetheless, the emphasis in Green et al. (1996) was on the market (intangible asset) valuation of RD, not the value relevance of RD expense.

reached by Green et al. (1996: 210) is that '… it would be difficult to accuse the market of totally ignoring the value-relevance of past research and development expenditures that are yet to have an effect on earnings' – not necessarily the most ringing endorsement of the value relevance of R&D expense (as pointed out by Wyatt, 2008).

Stronger evidence, however, is provided by Stark and Thomas (1998) who, although not focussing on the value relevance of R&D expense, nonetheless effectively update Green et al. (1996). The fullest model they estimate is represented by the following equation:[2]

$$MV = \alpha_0 + \alpha_1 BV + \beta(E + RD) + \gamma RD + \delta LBV + \varepsilon \quad (2)$$

where:

E is profits before exceptional and extraordinary items; and
LBV is opening book value.

This specification ignores the control variables in Green et al. (1996), which added relatively little to explanatory power in that study. Rather than using the residual income variable of Green et al. (1996), equation (2) can be viewed as splitting it up into its components – earnings before exceptional and extraordinary items, with R&D expense added back, and opening book value times the cost of capital. Effectively, then, equation (2) is an unconstrained version of equation (1) if the firm cost of capital can be treated as a constant across firms.[3]

To estimate equation (2), annual cross-sections are constructed for 1990 to 1994. Unlike Green et al. (1996), the annual samples are not restricted to only firms reporting R&D expense. The results are much more positive in favour of the value relevance of R&D expense, with the coefficients on all the annual cross-sections and the pooled data being positive and significant at the 5% level. Further, the actual increases in explanatory power associated with the addition of R&D expense into the firm value equation are sizeable enough to be noticed not merely statistically.

Finally, Akbar and Stark (2003) provide the most recent and comprehensive evidence for the UK. Like Stark and Thomas (1998), the focus of this paper is not on the value relevance of R&D expense. Akbar and Stark (2003) include it in their regressions as a control variable because, in their view, the two studies described above established a case for the value relevance of R&D expense. As a consequence, to increase the power of their tests with respects to the value relevance of the variables they were concerned about (dividends and capital contributions), R&D expense should be included as a control variable. Using all non-financial firm-years for which relevant data is available from 1990 to 2001, the fullest model they estimate is as below:

$$MV = \alpha_0 + \alpha_1 BV + \beta RI + \gamma RD + \delta D + \varsigma CC + \eta OI + \varepsilon \quad (3)$$

where:

D is dividends declared;
CC is capital contributions; and
OI is an estimate of the Ohlson (1989) concept of 'other information'.

Equation (3) is estimated using four deflators – book value, number of shares, sales and opening market value. Estimates of the coefficient of R&D from pooling all the data are significant for all deflators.[4] Although the results for the annual cross-sections are not provided, footnote 8 (Akbar and Stark, 2003: 1232) of the paper suggests that these results almost invariably provide positive and significant coefficient estimates for R&D estimates, as do the coefficients reported for R&D expense for the pooled samples. They conclude (again from their footnote 8) that their '… results add further weight to the view that, on average, the capital markets treat research and development expenditures as investments in long-lived assets.'

Overall, the UK stream of work providing evidence on value-relevance has developed over time in three ways. First, the number of years has increased. Second, the models estimated have expanded to include more, or alternative, possible control variables. As a consequence of both these points, the power of the tests has increased. Third, the estimation methods have expanded to include more deflators. And, over the course of this development, the evidence in favour of the value relevance of R&D expense has become stronger.[5,6]

[2] For the sake of comparability with Green et al. (1996), I use different notation from that found in Stark and Thomas (1998).

[3] Rather than the firm-specific cost of capital used in Green et al. (1996).

[4] Akbar and Stark (2003) used a number of different deflators because of the debate which exists as to the appropriate deflator to use in value-relevance studies (for a recent and comprehensive contribution to this debate, see Barth and Clinch, 2007).

[5] Shah et al. (2008a) also provide evidence which is consistent with the idea that market participants discriminate between sectors in the valuation of R&D activities.

[6] A different literature, based in (industrial) economics, relates R&D expenditures and other measures of innovation to the market values of firms. See Greenhalgh and Rogers (2006) for a relatively current example of this literature and a source of useful references. One key difference between this literature and that in accounting and finance is that the valuation models tend to be estimated in a form that is non-linear in the underlying variables, versus the assumed linearity in the accounting and finance literature. As a consequence, it is not clear that the results from this literature are strictly comparable with those drawn from the literature in accounting and finance.

Nonetheless, as indicated in the previous section, the value-relevance of R&D expense is unlikely to be purely a consequence of reporting that single number. Instead, the association between R&D expense and market prices emerges through a disclosure process, whether via the financial statements, or via other means, such as company and other meetings with analysts and institutional investors.

2.3. The use of discretion in capitalising development expenditure in the UK

Green et al. (1996: 201) argue that it was rare for capitalised R&D to appear in the balance sheets of UK listed firms. This conclusion was based upon the availability of data in Datastream for capitalised R&D for UK firms. Nonetheless, their conclusion was incorrect. As pointed out above, the revised version of SSAP 13, issued in 1989, did allow firms the discretion, but not the compulsion, to capitalise development expenditures under certain conditions (similar to those in the current IAS for the mandatory capitalising of certain development expenditures). Further, footnote disclosure was then available about the extent of the capitalisation of development expenditures. This footnote disclosure was rarely picked up by Datastream.

Oswald (2008) studies how the choice of capitalising versus expensing is associated with the value-relevance of book value and earnings.[7] He does so in a number of ways, but in describing the study I will concentrate on the aspect of the methodology that uses valuation models. He does so by comparing the explanatory power of two models of the firm. The first model is:

$$MV = \alpha_0 + \alpha_1 BV + \beta E + \varepsilon \quad (4a)$$

The second model adjusts BV and E to reflect what they would have been if the alternative possible treatment of development expenditures had been adopted. Therefore, if the firm-year observation is for a firm that is an 'expenser', BV and E are estimated 'as if' some capitalisation had occurred. If the firm-year observation is for a firm that is a 'capitaliser', BV and E are estimated 'as if' R&D expenditures are expensed. Therefore, the second model estimated is:

$$MV = \alpha_0 + \alpha_1 BV^{adj} + \beta E^{adj} + \varepsilon \quad (4b)$$

where:

BV^{adj} is adjusted book value; and
E^{adj} is adjusted earnings

Equations (4a) and (4b) are then compared for explanatory power for 'expensers' and 'capitalisers', the equations having been deflated by opening market value. Oswald's (2008) results suggest that firms' exercise of discretion over the accounting treatment of development expenditures are consistent with the notion that firms acted to increase the value relevance of earnings and book value. More specifically, equation (4a) has more explanatory power relative to equation (4b) for both the 'expenser' and 'capitaliser' sub-samples.[8]

There are a number of points that can be raised with respect to this study. First, it supports the notion that the IAS, in removing discretion over the treatment of development expenditures, remove a useful way for firms to communicate information to the stock markets. Further, it accords with the evidence discussed in Wyatt (2008) for Australia. We might conclude that, although the IAS solution might be purer in accounting terms, purity of accounting might not be an absolute informational virtue. Further, Nixon (1997) argues that one reason why many UK firms did not use the discretion allowed to capitalise and amortise some of their qualifying development expenditures is that to so do requires a reasonably substantial amount of work, both in terms of identifying expenditures for different R&D projects and in terms of then applying the rules.

Second, evidence in Oswald (2008), nonetheless, suggests that this discretion was exercised by a relatively small number of UK firms, and featured in a relatively small number of the firm-year observations. Specifically, Oswald's (2008) sample features 3,229 firm-years drawn from the period 1996 to 2004. Of these, he identifies 468 'capitaliser' firm-years, approximately 14.5% of the sample. This is consistent with the evidence in Nixon (1997). As a consequence, the withdrawal of discretion, as a practical matter, might not have too drastic an effect on the efficient operation of the UK stock market.

Third, there are the limits on the interpretations that can be placed on studies such as that of Oswald (2008). Ignoring the processes identified above via which the market attributes value to R&D activities, in particular, the study has particular resonance if it is believed that investors only concentrate on book value and earnings – and ignore all the other information that typical financial statements for listed UK (or elsewhere) companies contain, both financial and non-financial. Nonetheless, in the light of evidence that, indeed, market values can, and should, be explained by rather more informational variables than book value and earnings (in particular, R&D expense), it is not at all clear that such a belief is rational. As a consequence, we might want to know more about the impact of the exercise of discretion on the information content of the totality of the affected

[7] Oswald (2008) also studies the determinants of the choice between capitalisation and expensing.

[8] As with Akbar and Stark (2003), Oswald (2008) investigates the sensitivity of his results to alternative deflators. Generally, his results are not sensitive to the choice of deflator.

disclosures, not merely book value and earnings.

These observations, however, should not be interpreted as a criticism of Oswald (2008) alone. More, they should be interpreted as commenting on a general line of research in which, counter-factually, only certain accounting aggregates (e.g. book value and earnings) are apparently considered value-relevant in considering competing accounting treatments or changes in the value relevance of 'accounting' over time.

2.4. Is there evidence that R&D firms are mispriced in the UK?

Skinner (2008) asks whether there is any evidence that the form of accounting for R&D expenditures systematically misleads markets. Al-Horani et al. (2003) provide evidence on this issue. Underlying their investigation is the intuition that, if capital markets recognise the economic value of R&D activities, this recognition will be built into the market values of firms. As a consequence, *ceteris paribus*, the extent and value of R&D activities will be associated with the book-to-market (BM) ratio of firms, and the well-known BM effect, whereby high (low) BM firms tend to earn high (low) returns could be, at least partially, associated with R&D activities.

Al-Horani et al. (2003) use a sample of UK firms covering the years from 1990 to 1999. First, they split these firms up into those reporting R&D expense and those not. On average, just over 300 firms a year reported positive R&D expense. The R&D firms are then ranked by the ratio of R&D expense to firm equity market value (RD/ME) and formed into quintile portfolios. Al-Horani et al. (2003) observe that the lowest quintile R&D firms, as measured by RD/ME, have the lowest average annual returns, with average annual returns increasing as the quintile portfolios move from low to high RD/ME. Nonetheless, firms reporting R&D expense do not automatically have higher returns than non-R&D firms – the average annual return for non-R&D firms is higher than the average annual returns for the lowest three quintiles. These results are similar to those observed by Chan et al. (2001) in the USA. Further, when standard Fama-MacBeth (1973) tests involving monthly cross-sectional regressions are performed, in which firm monthly returns are regressed on firm size (market value), BM and RD/ME and the average coefficient for each independent variable calculated and tested against the null hypothesis that it is zero, the *only* variable that has a significant cross-sectional relationship with returns over the period is RD/ME.

These results can be interpreted in a number of ways. First, they appear to support the Al-Horani et al. (2003) intuition that the relationship of returns to BM is related to R&D activities.[9,10] Second, either RD/ME captures a priced risk factor or the positive relationship between RD/ME and returns signals under-pricing in which, in particular, high RD/ME firms are the most under-priced – even if the lowest three quintiles of RD/ME firms have *lower* average returns than non-R&D firms. Is there a possible explanation, however, that can justify the assertion that the positive relationship is a result of risk?

Consider the following possibility.[11] First, R&D activity buys real (call) options – the opportunity to invest in the production of some new good or service. R&D activity is part of the new product development process. Second, for a fixed BM ratio, combined with a further assumption that R&D programmes are relatively steady and, hence, R&D capital can be adequately proxied by R&D expense,[12] what is the implication of RD/ME increasing? The implication is that each pound of R&D activity is being less highly valued by stock market participants. Given that R&D activity is being valued like a call option, the higher the RD/ME, the less 'in-the-money' are the real options 'purchased' as a consequence of the R&D activities. Options theory suggests that the less in-the-money an option is, the higher will be its expected return, resulting in, *ceteris paribus*, a positive relationship between RD/ME and expected returns. As a consequence, it can be argued that there is a risk story that can explain the positive relationship between RD/ME and returns.[13]

3. Accounting for other intangible assets

Other expenditures could give rise to intangible assets. As indicated in Wyatt (2008), these expenditures could include expenditures on marketing and, in particular, advertising, and human capital development. In the UK, the accounting treatment

[9] Additional robustness tests suggest that it is credible to claim that there is both a BM and a RD/ME effect in the UK. There is little evidence, for the period studied, of a size (ME) effect.

[10] Al-Horani et al. (2003) also find that adding in a RD 'factor', related to the difference between returns for R&D firms and returns for non-R&D firms, improves the explanatory power of the Fama-French three factor model in the UK.

[11] The explanation is attributable to my colleagues Ala'a Al-Horani and Peter Pope as much as to me. It was contained in pre-publication versions of our paper but the referee was insistent that it be taken out if the paper was to be published.

[12] Hirschey and Weygandt (1985) would argue that this is the case.

[13] Skinner (2008) puts forward a further test for whether current accounting procedures have bad effects. He asks whether capital markets fail to provide the necessary funds to support high technology firms. In the UK, the stock markets have adapted to allow the listing of, for example, biotechnology firms with no history of profits. As a consequence, there is no clear-cut evidence that current accounting rules have interfered egregiously in the development of a UK biotechnology sector. Nonetheless, it is difficult to identify whether the correct firms, or the correct number of, firms have been listed.

is to immediately expense such expenditures, a treatment not altered by the advent of IAS. There are no requirements to disclose the amounts of these expenditures. There is relatively little UK evidence with respect to the views of analysts, company accountants, etc., about the accounting treatment of these expenditures. Nor is there much UK evidence that can even allude to the value-relevance of these expenditures.

There are two papers, however, that speak, directly and indirectly, to some of these issues with respect to advertising activities. First, Gray et al. (1990) survey the views of chief financial officers in the UK and the US on the net benefits of voluntary disclosure with respect to various items. The survey was conducted in 1984–1985 and one of the items considered was advertising expenditures.[14] With regard to the voluntary disclosure of advertising expenditures, Gray et al. (1990) state 'U.K. financial executives are significantly more worried about the net costs of providing information on the amount of advertising expenditure' relative to their counterparts in the US. Specifically, UK financial executives perceive net costs to such disclosures.[15]

Second, Shah et al. (2008b) provide evidence on the value relevance of estimates of major media advertising expenditures. The source of data for the estimates of advertising expenditures is ACNielsen MEAL. ACNielsen MEAL are a major commercial supplier of estimated advertising expenditures, published quarterly. As a consequence, these estimates are available at a cost to business and market participants. The estimates are based upon surveying major media outlets for advertisements associated with products. These advertisements are then multiplied by estimated rates to get a cost *per* advertisement. The data is aggregated by product which can then be further aggregated from products to product groups to companies.

In testing for the value relevance of ACNielsen MEAL estimates of major media advertising expenditures, Shah et al. (2008b) extend the model of Akbar and Stark (2003), as described in equation (3) above, to include an advertising expenditure variable.[16] As an additional value relevance test, they examine whether advertising expenditures are able to help in the prediction of the subsequent year's residual income, once other variables are controlled for (lagged residual income, lagged R&D expenditures, and lagged book value). Their conclusions are that major media advertising expenditures are value relevant for non-manufacturing firms, but not for manufacturing firms. They conclude, with respect to the UK, that their results 'could be of interest to … policy-makers … because the results suggest that the provision of major media advertising information could be useful to market participants, in the sense that estimates of these expenditures can help explain variations in market values, and help forecast a measure of earnings, for a class of firms. As a consequence, one element of a case for their disclosure could be brought – some benefits seem to exist, to offset any associated costs.'[17]

Summarising, for advertising expenditures that might give rise to intangible assets, therefore, there is some evidence that, for a limited class of expenditures (major media), and for a limited set of firms, they are value-relevant. It is not clear that all advertising expenditures, even major media, lead to the acquisition of an intangible asset. As a consequence, there *could* be a case for the disclosure of such expenditures, or a class of such expenditures, subject to an assessment of the costs (proprietary and other) of such disclosure.

Nonetheless, given the views previously expressed by UK financial executives reported in Gray et al. (1990), there might well be resistance to such disclosure. It is worth noting in this regard that, however, judging by the evidence from Hope and Gray (1982) and Nixon (1997), the views of industry appeared to have changed over time with respect to the disclosure of R&D amounts and voluntary disclosure. As a consequence, there might be less resistance now to the disclosure of (certain types of) advertising expenditures than over 20 years ago.

[14] As pointed out in Shah et al. (2008b), before 1994 'the Securities and Exchange Commission (SEC) required industrial and commercial firms to supply a supplementary income statement information schedule, which contained, as one of its items, advertising expenses. In 1994, however, the SEC issued FR44, which eliminated the requirement to furnish this schedule. As a consequence, FR44 effectively overturned the SOP 93-7 requirement for separate disclosure of advertising expenses for industrial and commercial firms. As a consequence, the disclosure of advertising expense in the US has been voluntary since 1994 for these firms.' As a consequence, it is not totally clear that the disclosure of advertising expenditure was *voluntary* in the US during the period of the survey.

[15] Simpson (2008) studies the consequences of the change in the advertising expenditure disclosure requirements for US industrial and commercial firms. Her results identify patterns of voluntary disclosure behaviour in which firms in industries where advertising expenditures by one firm benefited their rivals before 1994 are less likely to disclose advertising costs voluntarily after 1994. Also, firms, which experienced valuation benefits from advertising before 1994 are more likely to voluntarily disclose afterwards. Her results also indicate that investors in the US markets treat voluntarily disclosed advertising expenses as if they are investment expenditures.

[16] They do not include the 'other information' variable from equation (3), however.

[17] Kallapur and Kwan (2004) investigate the value relevance of brand assets recognised in UK balance sheets as a consequence of acquisitions. They find that the recognised brand assets are value-relevant. Nonetheless, they also provide evidence that the valuations placed on recognised brand assets by UK firms are subject to contracting incentives caused not only by the conventional source of debt contracts but also by London Stock Exchange rules relating to circumstances under which UK companies can undertake acquisitions without seeking the approval of their shareholders.

4. Accounting policy implications for recognition and disclosure

Similar to the views of Skinner (2008), there appears to be little demand, and little evidence, for a widespread reappraisal of accounting policy with respect to allowing the capitalising of some or all of R&D expenditures in the UK. Firm representatives do not believe that there are systematic and widespread mis-pricing effects for firms with R&D activities and the empirical evidence supports this. If anything, the evidence suggests that IAS standards should be changed to allow the discretion, previously allowed under SSAP 13, as to whether or not to capitalise qualifying development expenditures. Even there, however, the consequences of disallowing discretion are unlikely to be large with respect to the efficient operations of stock markets although, as suggested by Nixon (1997), there might be some cost implications for company accountants.

Penman (2006) points out that, for firms in a steady state (even if growing), the capitalise/amortise *versus* immediate expensing issue with respect to expenditures that might give rise to intangible assets is not automatically of any concern to market participants seeking information relevant to valuing the firm. For such firms, the accounting treatment (e.g. immediate expensing) of these expenditures does not mislead market participants into serious forecasting mistakes with respect to the future potential of firms. Further this idea is not restricted to expenditures that are disclosed.[18]

This raises three issues. One is whether the capitalise/amortise *versus* immediate expensing issue could be an issue for non-steady state firms. The second is whether, for these firms, there might be a need to separately disclose expenditures on items likely to give rise to intangible assets. The third is whether there are sufficient safeguards in place with respect to voluntary disclosure to ensure that such disclosures can be relied upon. If they cannot be relied upon, as Skinner (2008) suggests, there could be a role for some kind of regulation by accounting bodies or the state.

For R&D, however, it seems accepted in the UK that voluntary disclosure outside of financial statements, in addition to the disclosure of R&D expenditures, is necessary in order that stock markets can put appropriate values on firms' R&D activities. One role for the disclosure of the amount of R&D expenditures could be that it provides a 'reality check' on claims made by companies' managements with respect to the future benefits arising from such expenditures. Nonetheless, the appropriate valuation of R&D expenditures, whether for firms in a steady state or a non-steady state, in general does not seem to require the capitalising and subsequent amortising of some or all of R&D expenditures.

One would not want to be too sanguine about the incentives for reliable disclosure, however. In particular, the UK biotechnology industry has been the subject of a number of disclosure 'incidents' in recent years.[19] Whether such incidents were the result of deliberate attempts to defraud or an unfortunate degree of over-enthusiasm about future potential is not clear. Arguably, however, such incidents did give rise to concerns that lead the BioIndustry Association in the UK to produce its 'Best Practice Guidance on Financial and Corporate Communications'.[20] Presumably, this move was motivated by potential spillover effects for the whole industry of disclosure 'incidents'. Further, surveying the Regulatory News Service reveals little evidence of bad news concerning drug trials which, given the perceived riskiness of the drug discovery process, could be regarded as surprising. As a consequence, as Skinner (2008) suggests, there could be a role for voluntary disclosure guidelines.

The situation could be different for other categories of expenditure, however. As Penman (2006) indicates, the lack of disclosure of advertising expenditures will not automatically cause difficulties for the valuation of companies. Nonetheless, the assumption of firms being in a steady state for forecasting purposes covers up many implicit assumptions about the built-in relationships between advertising activities, and their extent, and subsequent sales, and their extent. It is difficult to see how, without the *disclosure* of advertising expenditures, market participants can assess the realism of their revenue projections and their dependence on marketing and advertising activities. Similar arguments could be made, for example, about expenditures on the development of a well-educated and well-trained work force.

Note, however, that most advertising activities, by their nature, are not meant to be secret. In other words, market participants can observe them to one extent or another, depending upon the good or service involved. If they cannot, then information intermediaries such as ACNielsen MEAL can provide estimates of some types of expenditure at a cost. As a consequence, it could be argued that there are alternative, if imperfect and costly, means of getting information on advertising activities,

[18] As pointed out by Skinner (2008), Penman (2007) illustrates this basic point via a valuation case study using Coca-Cola. He shows that it was perfectly possible to apply forecasting methods that valued Coca-Cola pretty accurately despite the fact that advertising expenditures are expensed and, as a consequence, what is undoubtedly a major intangible asset is omitted from Coca-Cola's balance sheet.

[19] Joos (2003) suggests that such problems are not unique to the UK but have also occurred in the USA.

[20] http://www.bioindustry.org/biodocuments/BestPracticeGuidance/BestPracticeGuidance.pdf

and their extent. The market participant does not necessarily start at ground zero with regards to the effects of corporate advertising. It is not clear that this could be said about other categories of expenditures that have the potential to create intangible assets, however.

Nonetheless, to be set against such arguments in favour of disclosure are ones that speak to the exact definition of such activities and, as a consequence, expenditures related to them. Further, there are also the normal issues of (proprietary) costs associated with additional disclosure. In the context of the USA, Simpson (2008) provides evidence on proprietary costs by studying the behaviour of firms before and after the SEC dropping the requirement for the mandatory disclosure of advertising expenditures in 1994. Her study does suggest the existence of proprietary costs associated with levels of competition and competitive structure in sectors.

In general, Basu and Waymire (2008), Skinner (2008), Wyatt (2008) and Ittner (2008) emphasise that the creation of intangible assets in the context of fairly complex business models and processes. Further, these business models and processes, whilst possibly possessing some degree of homogeneity within sectors and across sectors, are also likely to involve considerable degrees of heterogeneity. This gives rise to some concern about the possibilities for the formal regulation of voluntary disclosure, and the level of detail that could be involved. Could a common regulatory framework, for example, identify a set of performance indicators that would be relevant for *all* firms in helping market participants in understanding the link between current activities in creating intangible assets and future performance?

There are two aspects to answering this question. First, does such a set of performance indicators exist? Second, could regulators identify them? The evidence surveyed in Ittner (2008) suggests that (perhaps surprisingly, perhaps not) businesses have difficulty in identifying such performance indicators themselves. Further, there is no indication that, for those firms that think they have a firm handle on performance indicators that help them implement their business models and processes, the performance measures are common across such firms.

These views partially echo the work of Holland (2001, 2003, 2005) concerning UK company managers and fund managers. The evidence in Holland (2001, 2003, 2005) suggests that, in particular, communication between companies and fund managers about the creation of intangible assets is difficult, even when taking place in private, regularly scheduled, meetings between a fund manager and company management. In discussing intangible assets, these meetings tend to emphasise qualitative, rather than quantitative, information. But, his evidence emphasises that, notwithstanding the fact that, for example, R&D and advertising activities can be reflected in firm market values, fund managers, as major players in the UK stock market, do have difficulty in understanding corporate intangible asset creation processes. This lack of understanding could give rise to opportunistic behaviour.

The evidence suggests answers to both the questions posed above. First, it is not clear that a set of performance indicators, relevant for all firms, exists. As a consequence, sets of performance measures might well have to be created for individual sectors and/or business models and processes. Second, if businesses find it difficult to come up with appropriate sets of firm-specific measures, and major shareholders (i.e. fund managers) find it difficult to understand the value creation process for intangible assets in individual firms, is it likely that regulators can somehow do firms' jobs for them, in identifying relevant performance indicators, and help ameliorate the communication difficulties between firm managers and major shareholders? Nonetheless, the lack of understanding of major shareholders concerning the value creation process for intangible assets could give rise to opportunistic behaviour.

As a consequence, Skinner's (2008) suggestion that the regulatory framework would likely be in the form of a broad set of guidelines to help businesses in how to communicate information relevant to the links between various types of expenditure designed to increase performance in the future seems sensible. One possibility is that a 'best practice' framework for the disclosure of information concerning intangible assets could operate within a 'comply or explain' mode, as with the Combined Code.[21]

Nonetheless, in the UK, the Financial Services Authority already publishes guidance on the disclosure of price sensitive information.[22] As a consequence, any such additional guidelines would have to be incrementally useful relative to the existing guidance. That such additional guidance could be useful is indicated by the UK BioIndustry Association publication referred to above.[23] But, the existence of such sector specific guidance also provides another benchmark against which broad regulatory guidelines should add value. Put another way, there already exist guidelines in the UK about the voluntary disclosure of corporate infor-

[21] This point is attributable to William Forbes.

[22] http://www.fsa.gov.uk/pubs/ukla/GU-0796.pdf

[23] Further, if a sector shares enough common interests to create an industry association, there might be incentives to create sector-specific self-regulation mechanisms with respect to activities with potential negative spillovers (e.g. overly opportunistic disclosures).

mation, including those produced by industry associations. The key question then is – what additional value added would be provided by a broad set of guidelines in the UK?

5. Conclusions

It would be difficult, based upon the UK evidence available, to say that the current combinations of various (relatively similar) accounting regulations *plus* mandatory/voluntary disclosure mechanisms (including the obligation to disclose price sensitive information) lead to enormous inefficiencies in the UK, or elsewhere. Further, and more specifically, not allowing the capitalisation of many intangibles does not seem to do inordinate harm. Nonetheless, there could be a case for the explicit disclosure of more categories of expenditures involving intangibles to aid in the forecasting of future prospects – but proprietary costs would need to be explicitly considered, and the difficulties of definition grappled with.

It is also possible that there is a role for accounting policy-makers in regulating, or providing guidelines on, the voluntary disclosure of information about expenditures and their association with future prospects. Nonetheless, expenditures on intangibles are thought to be intertwined with business models and processes that produce difficulties in identifying particular items of financial or non-financial information that are unequivocally associated with future performance the disclosure of which, as a consequence, *could* be useful to investors and would not involve 'excessive' proprietary costs. As a consequence, regulating what *ought* to be disclosed concerning intangibles would be difficult. At best, there could be a role for regulators in establishing frameworks to guide voluntary disclosures, as opposed to specifying the content of such disclosures.

One difficulty in developing such guidelines in the UK, however, is that such guidelines already exist, whether through the Financial Services Authority or industry associations. As a consequence, further guidelines would have to consider what is to be added to the already existing ones.

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